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EMAIL TRANSMITTAL

Official

May 3, 2002

FAX RECEIVED

TO: Bryan Johnson  
P 3618  
Tel.: 703 308 0885

MAY 03 2002

703 305 7687

GROUP 3600

FROM: John W. Hathaway

206/624-9292

RE: Reconstruction of File in Serial No. 08/896,514

PAGES 6  
(INC. THIS PAGE)

Dear Mr. Johnson

Accompanying this Fax Transmission are pages 63-66, 109 and 110 from the Reconstructed file, consisting of pages 1-233. These pages apparently were inadvertently omitted when the subject file was faxed.

Please note that each page of the Reconstructed File are numbered in the lower left hand corner chronologically from the most recent paper (1) to the last numbered paper, consisting of the originally filed application.

We regret this transmission error.

Very truly yours,

*John W. Hathaway*

John W. Hathaway

BEST AVAILABLE COPY

**Office Action Summary**Application No.  
08/896,514Applicant(s)  
Conrad O. GardnerExaminer  
Michael MarGroup Art Unit  
3619☒ Responsive to communication(s) filed on Jul 3, 2000☒ This action is **FINAL**.☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire Three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

**Disposition of Claims**☒ Claim(s) 30-41 and 46-61 is/are pending in the application.Of the above, claim(s) 30-33 is/are withdrawn from consideration.☒ Claim(s) 61 is/are allowed.☒ Claim(s) 34-41 and 46-60 is/are rejected.☐ Claim(s) \_\_\_\_\_ is/are objected to.☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.**Application Papers**☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.☐ The specification is objected to by the Examiner.☐ The oath or declaration is objected to by the Examiner.**Priority under 35 U.S.C. § 119**☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).☐ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been received.☐ received in Application No. (Series Code/Serial Number) \_\_\_\_\_☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).**Attachment(s)**☒ Notice of References Cited, PTO-892☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_☐ Interview Summary, PTO-413☐ Notice of Draftsperson's Patent Drawing Review, PTO-948☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 55-60 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 55 is vague and unclear as to what power source provides the "instant powerful acceleration" and what is meant by "the cruise mode". The recitation "when the speed of the vehicle is dropping" is also vague and unclear since it is used together with "powerful acceleration". Also, the recitation "powerful acceleration" has no specific meaning since the word "powerful" is a relative term. What may be considered powerful acceleration for one type of vehicle could be considered weak acceleration for another type of vehicle.

In claim 56, the recitation "within a small range of speeds" is unclear as to whether vehicle speed or engine speed(rpm) is being referred to.

In claim 57, line 3, there is no antecedent basis for "the cruise mode".

In claim 58, the recitation "utilizing . . . vehicle" in lines 3-4 is vague and indefinite since there is no clear guideline as to what the power of "an equivalent weight internal combustion only

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powered vehicle" could be. For example, the power of internal combustion only powered vehicles could range from 100 to 400 HP.

In claim 60, line 3, there is no antecedent basis for "the cruise mode".

In claims 55, 56, & 59 the recitation "fast charge-discharge battery" is vague and unclear. Since the word "fast" is a relative term, a reference point for determining the definition of "fast" needs to be established.

*Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless —

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 55 is rejected under 35 U.S.C. 102(b) as being anticipated by Kenyon (of record).

Note the engine and alternator arrangement which provides quick surges of power for rapid acceleration of the vehicle.

4. Claim 55 is rejected under 35 U.S.C. 102(b) as being anticipated by Kim.

Note the continuously running low powered engine for operating the generator.

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5. Claims 55-60 are rejected under 35 U.S.C. 102(b) as being anticipated by Ellers (of record).

With respect to claims 55 and 56, the engine is activated to operate a generator whenever the battery is low. With respect to claim 57, note that the internal combustion engine is used to power the vehicle only above 55 mph which would constitute a cruise mode and the electric motor is used at speeds below 55 mph for conditions when the cruise mode operations are not satisfied. With respect to claim 58, the engine is a small engine for maximum efficiency during cruise mode conditions. Regarding claim 60, the control 25 controls the engine and electric motor in responsive to vehicle operating parameters.

*Claim Rejections - 35 USC § 103*

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 34, 35, 37, 40 & 50-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ellers(of record).

Ellers discloses a pre-programmed control 25 which activates the internal combustion engine 21 and the electric torque converter 35 for coupling the engine to the second pair of wheels 15 &

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17 when the vehicle approaches a pre-selected desirable speed of 55 mph. Since Ellers describes the preselected desirable speed at which the engine is activated as a cruising speed(col. 1, lines 55-58), after this speed has been reached, the vehicle is in a condition which constitutes a "cruise mode on condition". When the speed drops below 55 mph, the control decouples the engine from the second pair of wheels. This condition constitutes a "cruise mode off condition". The control could also activate a second coupling 65 for connecting the engine to an electric generator 63 for charging a battery 5 during the "cruise mode off condition". The internal combustion engine 21, being a small engine with no throttle control, would operate at a constant speed for maximum efficiency and minimum pollution. With respect to claims 42-44, note the control system for using only the electric motor at speeds below the pre-selected desirable speed of 55 mph. As the vehicle approaches the pre-selected desirable speed, the control system activates the internal combustion engine and disconnects electric power to the electric motor. Since the electric motor is always operating below the pre-selected desirable speed, the speedometer 67 would function as a display device for indicating when the electric motor is powering the hybrid vehicle at the lower speeds. With respect to claims 37 & 40, the engine drives the wheels when the vehicle is above the pre-selected desirable speed. When the battery charge is low, the control switches to a second mode in which power from the engine is transferred to the generator.

It would have been obvious to program the control circuit of Ellers to always connect the engine to the generator during the cruise mode off condition in order to maintain a fully charged battery. With respect to claim 50, since the cruise mode is set only when the vehicle has reached

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a predetermined speed, it would have been obvious to activate the cruise mode only after a predetermined period of time in which rapidly shifting power and speed demands have not occurred in order to provide a consistent speed for the cruise mode. With respect to claim 51, since Ellers teaches using the engine to drive the generator whenever the charged state of the battery is too low, it would have been obvious to activate the engine for charging the battery, even during periods of low speed when the electric motor is used to power the vehicle.

8. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ellers in view of Fields et al(of record).

Fields et al discloses a hybrid vehicle having an electric motor for driving a pair of rear wheels and an internal combustion engine for driving a pair of front wheels and teaches using only the engine for propelling the vehicle in the event the batteries are run down.

It would have been obvious to provide the vehicle of Ellers with the capability of using only the internal combustion engine for propelling the vehicle as taught by Fields et al in order to permit the vehicle to operate in the event the electric motor becomes damaged.

9. Claims 38, 39 & 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ellers in view of Miyake et al.

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Miyake et al teaches the old and well known use of timing circuits for determining the actuation of a transmission thereby preventing "hunting" or rapid shifting of the transmission shift when the vehicle is operating within the criteria for shifting of the transmission.

It would have been obvious to provide the control means of Ellers with a timing circuit for delaying the transfer of driving forces from the engine to the wheels after the predetermined running state value has been sensed as taught by Miyake et al, in order to produce a smoother vehicle operation by reducing the amount of on/off cycling required by the engine. With respect to claims 41 & 45, it would have been further obvious to set the speed at which the internal combustion engine is activated to that of 40 mph in order to maintain a higher battery charge, thereby permitting extended use of the electric motor at the lower speeds.

10. Claims 46-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kenyon in view of Lynch et al(both of record).

Kenyon discloses a four-wheel driven hybrid vehicle comprising an internal combustion engine 10 connected to a first pair of wheels through a clutch 12, an electric motor 54 connected to a second pair of wheels, and a control system for interrupting the operation of the internal combustion engine and activating the electric motor when the vehicle speed has dropped below a predetermined speed, and for interrupting the operation of the electric motor and activating the internal combustion engine when the vehicle is driven above a predetermined speed. In the event the electric motor becomes inoperable, the internal combustion engine could be used to power the



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vehicle. Lynch et al discloses a hybrid vehicle having a clutch and a transmission interposed between an internal combustion engine and driven wheels of the vehicle.

It would have been obvious to provide the hybrid vehicle of Kenyon with a transmission between the clutch and the driven wheels as taught by Lynch et al in order to provide a more efficient use of the engine power.

11. Claim 61 is allowed.

#### REMARKS

12. Applicant's remarks have been considered but are not deemed persuasive.

As explained in Paper No. 31, since Ellers teaches recharging the battery whenever the battery is low, it would have been obvious to activate the engine to recharge the battery at all operating speeds of the vehicle as explained above. This would even apply to conditions of low speed when only the electric motor is normally operated. Specific numeric values such as the speed at which the vehicle is in the cruise mode and the specific time before actuation are considered obvious variables which would depend upon the desired mode of operation by the user. Also, since the use of timing circuits to prevent continuous on/off type cycling is considered old and well known, their use in a hybrid vehicle would have been obvious as explained above. The above rejections are still deemed to be proper.

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13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

15. **Any response to this action should be mailed to:**

Assistant Commissioner for Patents

Washington, D.C. 20231

**or faxed to:**

(703) 308-2571

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(for formal communications intended be entered)

(all informal communications should be labeled "PROPOSED" OR "DRAFT")

or hand delivered to:

Crystal Park 5, 2451 Crystal Drive, Arlington, Virginia 22202

Seventh Floor(receptionist)

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Mar at telephone number (703) 308-2087, or by e-mail to: michael.mar@uspto.gov

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1113.



MICHAEL MAR

Primary Examiner

M.Mar

8-11-2000

<b>Notice of References Cited</b>			Application No. 08/896,514		Applicant(s) Conrad O. Gardner	
			Examiner Michael Mar		Group Art Unit 3619	
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<b>U.S. PATENT DOCUMENTS</b>						
	DOCUMENT NO.	DATE	NAME		CLASS	SUBCLASS
A	4,953,546	9/1990	Kim		180	65.4
B	5,176,213	1/1993	Kawai et al		180	65.4
C						
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<b>FOREIGN PATENT DOCUMENTS</b>						
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